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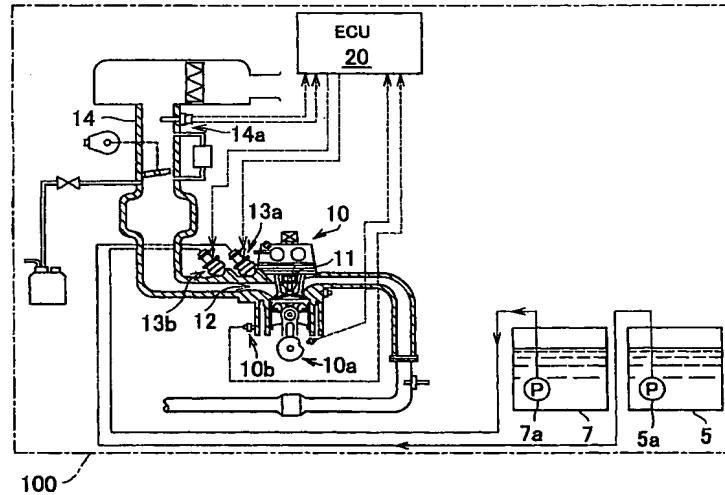
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(54) Title: SPARK IGNITION INTERNAL COMBUSTION ENGINE



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(57) Abstract: A low-octane fuel and a high-octane fuel stored in a low-octane fuel tank (5) and a high-octane fuel tank (7), both having known octane numbers, are injected from fuel injection valves (13a, 13b) into an intake port (12) at a mixing proportion that achieves a standard octane number set in accordance with the engine operation state. If knocking occurs during a predetermined steady engine operation state, the knocking is detected by a knock sensor (10b) and, corresponding to the knocking, the ignition timing is retarded from a basic ignition timing. A deviation in octane number is determined from the amount of ignition timing retardation with reference to a map, and is then corrected by the intake air pressure. On the basis of the corrected deviation in octane number, a deviation in the mixing proportion of the high-octane fuel is determined with reference to a map. The thus-determined deviation is added to a target mixing proportion computed corresponding to the standard octane number, thereby computing the present mixing proportion.